

Alien

# ns among us

## *Invasive species wreak havoc*

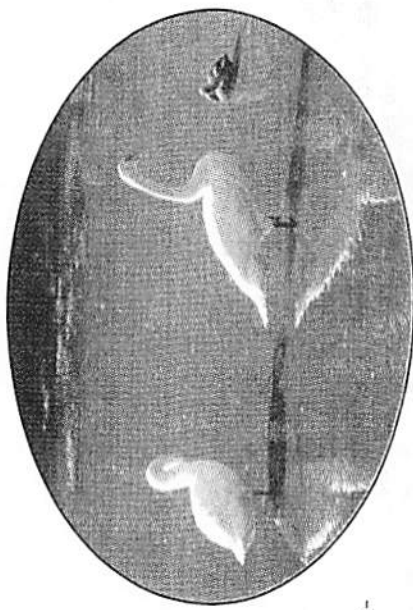
By Brian Falk  
MPG Newspapers

**A**liens have arrived, and they're taking over pockets of South-eastern Massachusetts.

This is no sci-fi conspiracy theory. Every day in local forests, ponds and marshes, native plant and animal species must fight for survival against aggressive exotic competitors, so-called invasive species.

Some of these invaders have been here for centuries, arriving with the Pilgrims. Others have just started to make their presence known.

Staff photo/Ann Archambault



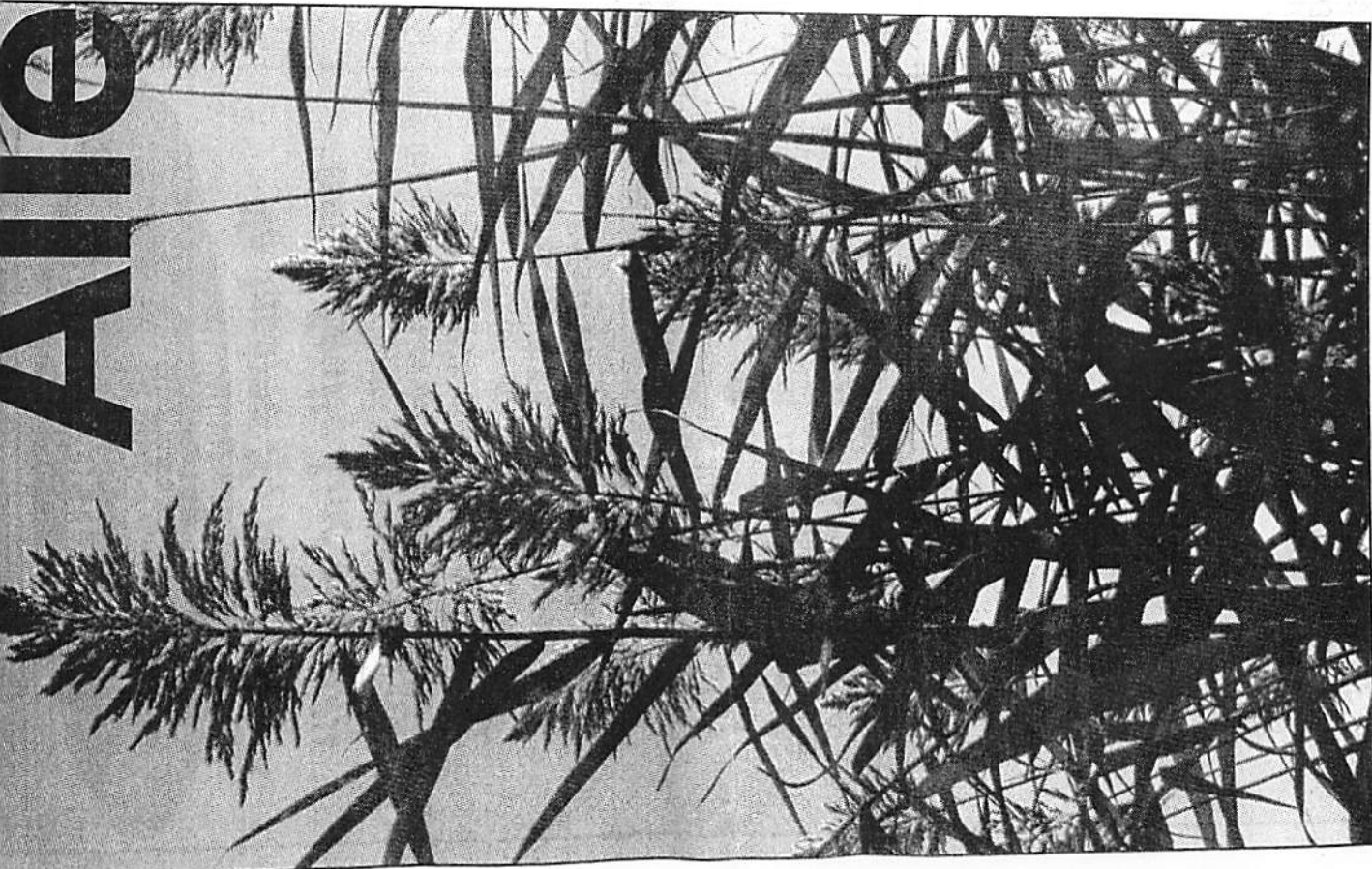
**Swan strut** — Swans walk and swim in the shallow waters of Jenney Pond in Plymouth.

See **INVASIVES**, Page B2



Staff photo/Mark Gardner

**Stop the spread** — Mark Primack, executive director of the Wildlands Trust, tries to win the ongoing battle against the



Staff photo/Ann Archambault

**Silhouette** — Phragmites along the North River in Marshfield is silhouetted

**"Each new invasive has the potential for huge economic and ecologic impacts."**

— Jay Baker

# Aliens take over without a fight

## ■ INVASIVES, from Page B1

Purple loosestrife and phragmites are among the better-known local invasive species, clogging waterways and wreaking havoc on some marshes and wetlands. But others, such as the mute swan, bittersweet vine and some anonymous weeds, are able to blend in, with many people unaware that they are in fact foreign invaders.

Despite efforts to prevent new arrivals and get rid of the most problematic non-native species, experts and concerned citizens alike know that once invasives take root, they're hard to control. They can also have serious consequences for the local environment.

The state Division of Fisheries and Wildlife estimates that more than 40 percent of all plants in Massachusetts are non-native. The number of non-native animals is harder to estimate, according to Tim Simmons, a restoration ecologist with Fisheries and Wildlife, but they too are abundant.

But "non-native" does not necessarily mean "invasive." Most exotic plants and animals cannot survive in local ecosystems, and those that can are usually not a problem.

An invasive species is one that thrives in a new environment, has no natural controls on its growth and threatens the survival of both native organisms and entire ecosystems.

"It doesn't stay in your garden," said Tom Maloney, director of the Nature Conservancy's Plymouth pinelands program, which works to protect the area's rare pine barren and coastal plain pond ecosystems. "It spreads out across the landscape."



Staff photo/Ann Archambault

**Bittersweet** grows like crazy along Jenney Pond in Plymouth.

**In local forests, another invasive plant is choking out native trees and shrubs — the oriental bittersweet. Mark Primack called this vine his "personal nemesis."**

and bilge water. Recreational boaters can spread invaders as they bring their craft from pond to pond.

Human activity can also be blamed for giving invasives an opportunity to take over, experts say. When septic tanks, lawn fertilizers and other pollutants diminish water quality in a pond, river or marsh, native plants and animals can have a tough time adapting, but non-natives can thrive.

This summer, the town of Plymouth once again had to harvest the invasive elodea weed from Billington Sea. Other local ponds

can overrun the area, ruining the habitat for native marsh grasses and animals.

"There's not very much that eats phragmites, whether it be the phragmites' seed or the stem," said Mark Primack, director of the Duxbury-based Wildlands Trust of Southeastern Massachusetts.

In local forests, another invasive plant is choking out native trees and shrubs — the oriental bittersweet. Primack called this vine his "personal nemesis."

Bittersweet was introduced from Asia as a garden plant. Spreading

Purple loosestrife, with its bright purple tips, was introduced as a decorative plant from Europe in the early 19th century. But now vast stands of loosestrife can be found in wetlands and marshy roadsides throughout the area, choking out native plants.

"It becomes a monoculture that takes over, and the root mats prevent other native vegetation from taking root," said Bill Davis, a wildlife biologist with the state Division of Fisheries and Wildlife.

Monocultures, like loosestrife infestations, lead to a sterile environment, Davis said, in which native aquatic plants and animals cannot survive.

As in the case of purple loosestrife, humans are largely to blame for the arrival of non-native species. European settlers to Southeastern Massachusetts brought crops and livestock with them, along with decorative plants and pets that reminded them of home.

Gardeners often choose exotic flora for aesthetic purposes. Ships carry stowaways in cargo crates

blooms this summer, including Halfway Pond, near where Ed Russell lives.

"It was practically impassible," Russell said, "the weeds were so thick."

Other freshwater invasive plants now common in the area are water chestnut, the Eurasian water milfoil and several species of algae. When these plants take over a pond the result is often murky, stagnant water, which tourists and recreational users avoid, Davis said.

Diminished water quality in local salt marshes has given phragmites, or common reed, an opportunity to crowd out native marsh grasses.

Phragmites, a tall green reed with a feathery top, appears to be a native species that hybridized with a non-native strain, Simmons said. These plants can grow up to 20 feet tall, and appear in many marshlands throughout the region.

Phragmites growth is stable in areas where it has natural growth inhibitors, Simmons said. But when pollution or water flow disruptions change a salt marsh, phragmites

become a problem. In the case of purple loosestrife, Primack said he's seen the invasive vine climb all over 70 foot white pines, sometimes blocking out top needles and killing the native trees.

Japanese knotweed, autumn olive and Norway maple also join the list of local invasives, competing with natives in local forests and fields.

Plants aren't the only non-native species causing problems locally. In various bays and estuaries along the South Shore, the invasive European green crab and Asian shore crab are eating up young shellfish and water plants. With no competing native crabs or other predators around, these exotics get a free lunch.

"No one has really pinned down what they prefer eating, but we know they're eating a lot," said Jay Baker, an environmental analyst with the state's Coastal Zone Management agency.

The green crab has been blamed for decimating the state's shellfish industry back in the 1950s, and it continues to be a major problem today, Baker said.

Unbeknownst to many people, the mute swans in local rivers and ponds are actually not native to the area. They were brought from Europe as ornamental birds for parks and zoos, but many escaped into the wild where they compete with native water fowl.

Though mute swans are protected by a federal migratory bird treaty, some experts consider them invasive.

"It's an elegant bird, a beautiful bird, and I think best described as a beautiful problem from an environmental point of view," said Davis.

Davis said mute swans are aggressively territorial when it comes to nesting space, and they can eat up many of the aquatic plants native migratory birds depend on.



**Whole lotta elodea** — A harvester comes up with a load of elodea at Morton Park in Plymouth on Aug. 19.



## Invasive species take over

### ■ INVASIVES, from Page B2

One mute swan has even terrorized canoeists on Plymouth's Eel River. Plymouth selectmen prescribed behavior therapy by the Manomet Center for Conservation Sciences for this unusually aggressive swan. If that doesn't work, and it keeps attacking boaters, selectmen have said they will order it removed to a wildlife sanctuary.

The solution for one unruly invasive might seem simple compared to the remedies for other problem species.

Removal of purple loosestrife and phragmites usually centers around cutting off the plant tips, to prevent seeds from spreading, and use of herbicides. But experts say these methods are only effective on isolated patches; once these plants take over, they are very hard to eradicate.

Maloney said the Nature Conservancy tries to focus on not only removing phragmites in certain spots, but restoring a marsh's natural conditions so the invasive reed is less likely to run amok again.

"We constantly try to evaluate if what we're doing is just gardening," Maloney said, "if what we're doing is sustainable over the long haul."

Getting rid of invasive crabs is probably impossible, according to Baker. He said Coastal Zone Management is looking into methods to keep the crab population in check, such as introducing crab diseases and parasites.

Baker said the agency just finished writing a five-year aquatic invasive species management plan, designed to study the impact of shoreline invaders and come up with regional solutions to slow their growth.

"I don't think we can ever hope to reduce new invasives to zero," Baker said. "Each new invasive has the potential for huge economic and ecologic impacts. We can't keep them all out, but if we can keep stop some high profile invasives it will make a big difference."

People can also make a difference in the battle against invasive species. The state Department of Environmental Management's Lakes and Ponds program encourages volunteers to learn how to identify and safely remove invasive weeds and other aquatic plants.

That type of grassroots effort can be the most effective weapon against invasives, according to Simmons. "If you can catch it before it becomes a problem, usually hand-pulling something and disposing of it properly is the best thing to do," Simmons said.

People can also help slow the spread of invasive species, experts say, by doing the following:

■ Ask for native plants when shopping at nurseries, and avoid planting invasives in backyard gardens.

■ Thoroughly clean plants and other aquatic debris from boats after each use.

■ Don't dump aquarium plants and fish: dispose of them in sealed plastic or return them to a pet store.

These efforts will not only thwart new invaders, they will also help preserve native biodiversity, which Davis said is important for humans as well as flora and fauna.

"A diverse environment is a better environment," Davis said. "If we start losing this diversity, we may lose the things critical to air quality, water quality... the things we need, as humans, to survive."

## Cleanliness is a luxury

"If I had a penny for every crumb I've wiped up in my life, I'd be a very rich woman," grumbled my wife as she took a sponge to the breakfast table that was littered with flecks of the homemade bread she'd made the day before. "You have to remember," I said, "that cleanliness isn't natural to the human condition."

I was served a glass of Mekong whiskey by a tribal headman in

Laos in a glass so encrusted with dirt, I tried to suck the whiskey in without touching the glass to my lips. I trusted the homemade hooch would kill any microbes. I suffered no ill effects.

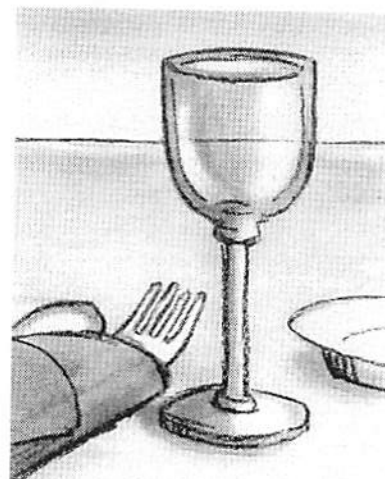
### Good eating



Richmond Talbot

come a guest who was offered a drink, rather than a tourist to be sold souvenirs. My party was as much an object of curiosity as the people we were there to visit. I tried to return the headman's respect, and I hope he thought my slurping of the whiskey was just the funny way foreigners drink.

When you travel in the third world, you pass markets that smell of meat set out in the tropical heat, and the solution of the problem of flies is a little boy waving a palm frond. You know that the delicious food in the local restaurant was bought in those same markets. You know there are no health inspectors to stick thermometers into the dishwashing water. Your best de-



Staff illustration/Dave Dickie

fense is a healthy immune system.

Clean plates, clean utensils, refrigeration, and plastic wrap are luxuries we're accustomed to. Our immune systems have gotten used to them too, so when we travel we may be made sick by germs the locals harbor without any problem at all. I don't think this means we should try to make ourselves stronger by relaxing our standards for healthy food, but we should stop and think before we make them more restrictive than they are.

If we were somehow able to live in a bubble that was completely free of any virus or bacteria that could possibly make us sick, we'd be stuck inside forever, because, if we came out, we would immediately fall prey to illnesses we now fight off without even knowing a battle is going on.

There is a movement afoot to restrict the importation and domestic manufacture of raw milk cheeses. Someone discovered that bacteria

from the unpasteurized milk can, in small numbers, live inside the cheese. "Eek germs!" said the Food and Drug Administration. Cheese lovers reacted in equal horror at being deprived of some of the great cheeses of the world that would be forbidden under the ban.

People eat these cheeses all the time without becoming sick. I think this is another task for the good old warning label. I look for it in the fall when I'm buying cider. Some of my favorite cider mills have stopped selling their own product because they're afraid of lawsuits from customers who think it made them sick and want to hit the jackpot in the litigation lottery. Unpasteurized cider tastes better, and I go a long way to find it, walking out of farmstands in disgust when I don't.

Even springs that were drunk from since there were only Indians are now closed because animal feces and perhaps the bodies of dead animals might get into the water. Are animals new to the environment, or were these hazards always there?

I'm for cleanliness. I'm for strict, unbribeable restaurant inspectors to keep restaurants on the up-and-up, and I admire chefs who keep their kitchens spotless. I don't want to adopt third world standards here.

But perfection is elusive, and we live with risk. If I ever get offered Mekong whiskey again, I'm going to take the glass and drink like a real person, instead of a timid foreigner. The only way to avoid all the hazards in life is to stay home in bed with the covers over our heads.

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